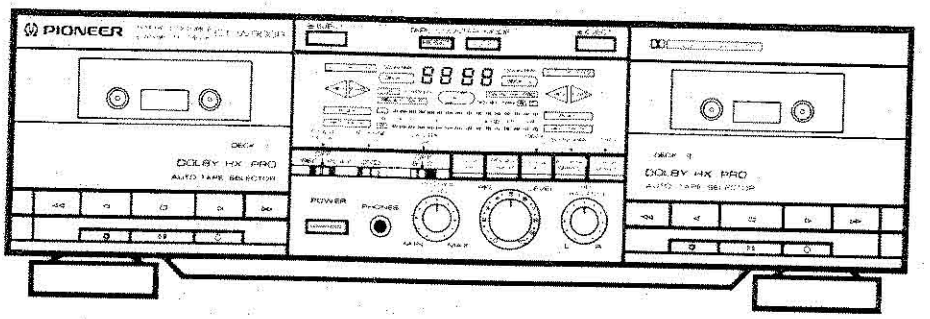
Operating Instructions

STEREO DOUBLE CASSETTE TAPE DECK

CT-W900R



Thank you for buying this Pioneer product.
Please read through these operating instructions so you will know how to operate your model properly. After you have finished reading the instructions, put them away in a safe place for future reference.
In some countries or regions, the shape of the power plug and power outlet may sometimes differ from that shown in the explanatory drawings. However, the method of connecting and operating the unit is the same.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

IMPORTANT NOTICE
[For U.S. and Canadian models]

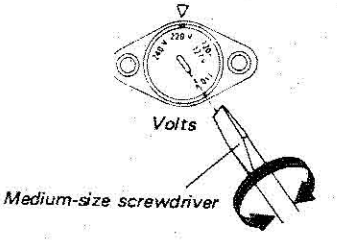
The serial number for this equipment is located on the rear panel. Please write this serial number on your enclosed warranty card and keep in a secure area. This is for your security.

LINE VOLTAGE SELECTOR SWITCH

Only multi-voltage models are provided with this switch. U.S., Canadian, European, U.K., and Australian models are not provided with this switch.
Main voltages in Saudi Arabia are 127V and 220V only. Never use this model with 110V setting in Saudi Arabia.

The line voltage selector switch is on the rear panel. Before your model is shipped from the factory, this switch is set to the power requirements of the destination. Check that it is set properly before plugging the power cord into the AC outlet. If the voltage is not properly set or if you move to an area where the voltage requirements differ,adjust the selector switch as follows.

1. Disconnect the power cord.
2. Use a medium-size screwdriver.
3. Insert the screwdriver into the groove on the voltage selector, and adjust so that the tip of the arrow points to the voltage value of your area.



"This product is manufactured to comply with the radio interference requirements of EEC Directive 76/889/EEC and 82/499/EEC."

PIONEER
The future of sound and vision.

IMPORTANT 1

The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user of the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION:
TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

IMPORTANT 2

If the apparatus is fitted with AC mains power outlet(s), see REAR PANEL FACILITIES for convenient connection of additional Hi-Fi component(s). Make all connections to the AC outlet(s) and the signal terminals first. Connect the plug to the wall socket last, make sure that the power switch is off.

FOR USE IN THE UNITED KINGDOM

The wires in this mains lead are coloured in accordance with the following code:

Blue: Neutral
Brown: Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured marking identifying the terminals in your plug proceed as follows:
The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.
The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.
Equipment sold in the U.K. is not supplied with a power plug.

SAFETY INSTRUCTIONS

READ INSTRUCTIONS — All the safety and operating instructions should be read before the appliance is operated.
RETAIN INSTRUCTIONS — The operating instructions should be retained for future reference.
HEED WARNING — All warnings on the appliance and in the operating instructions should be adhered to.
FOLLOW INSTRUCTIONS — All operating and use instructions should be followed.
WATER AND MOISTURE — The appliance should not be used near water — for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.
LOCATION — The appliance should be installed in a stable location.
WALL OR CEILING MOUNTING — The appliance should not be mounted to a wall or ceiling.
VENTILATION — The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
HEAT — The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
POWER SOURCES — The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
POWER-CORD PROTECTION — Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
POLARIZATION — If your purchased product is provided with a polarized power plug, please read the following instructions. This product is equipped with a polarized alternating current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
CLEANING — The appliance should be cleaned only with a polishing cloth or a soft dry cloth. Never clean with furniture wax, benzine, insecticides or other volatile liquids since they may corrode the cabinet.
POWER LINES — An outdoor antenna should be located away from power lines.
NONUSE PERIODS — The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
OBJECT AND LIQUID ENTRY — Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
DAMAGE REQUIRING SERVICE — The appliance should be serviced by a Pioneer authorized service center or qualified service personnel when:

- The power-supply cord or the plug has been damaged; or
- Objects have fallen, or liquid has been spilled into the appliance; or
- The appliance has been exposed to rain; or
- The appliance does not appear to operate normally or exhibits a marked change in performance; or
- The appliance has been dropped; or the enclosure damaged.

SERVICING — The user should not attempt to service the appliance beyond that described in the operating instructions. For all other servicing, contact the nearest Pioneer authorized service center.

OUTDOOR ANTENNA GROUNDING — If an outside antenna is connected to the antenna terminal, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges.
In the U.S.A. section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Fig. A.

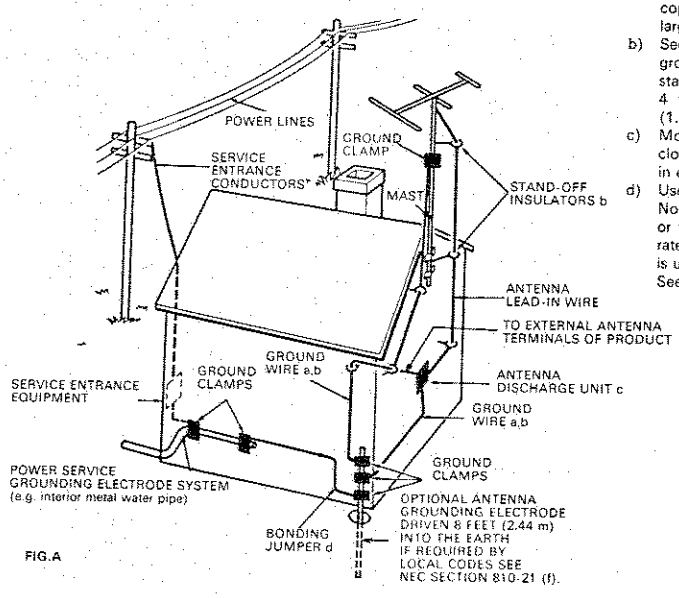

POWER LINES
SERVICE ENTRANCE CONDUCTORS
GROUND CLAMP
MAST
STAND-OFF INSULATORS b
ANTENNA LEAD-IN WIRE
TO EXTERNAL ANTENNA TERMINALS OF PRODUCT
GROUND WIRE a,b
GROUND CLAMPS
ANTENNA DISCHARGE UNIT c
SERVICE ENTRANCE EQUIPMENT
GROUND WIRE a,b
GROUND CLAMPS
POWER SERVICE GROUNDING ELECTRODE SYSTEM (e.g. interior metal water pipe)
OPTIONAL ANTENNA GROUNDING ELECTRODE DRIVEN 8 FEET (2.44 m) INTO THE EARTH IF REQUIRED BY LOCAL CODES SEE NEC SECTION 810-21 (f).
BONDING JUMPER d

FIG.A

a) Use No. 10 AWG (5.3 mm^2) copper, No. 8 AWG (8.4 mm^2) aluminum, No. 17 AWG (1.0 mm^2) copperclad steel, bronze wire, or larger as ground wire.
b) Secure antenna lead-in and ground wires to house with stand-off insulators spaced from 4 feet (1.22 meters) to 6 feet (1.83 meters) apart.
c) Mount antenna discharge unit as closely as possible to where lead-in enters house.
d) Use jumper wire not smaller than No.6 AWG (13.3 mm^2) copper, or the equivalent, when a separate antenna-grounding electrode is used.
See NEC Section 810-21 (j).

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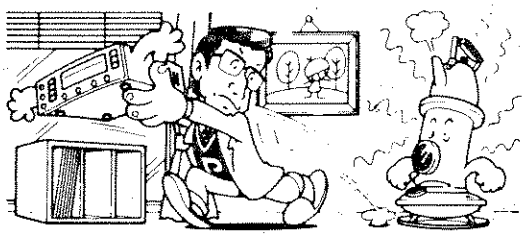
INSTALLATION

When installing the deck, avoid locations with high temperature or humidity, and be sure that the location is well ventilated.

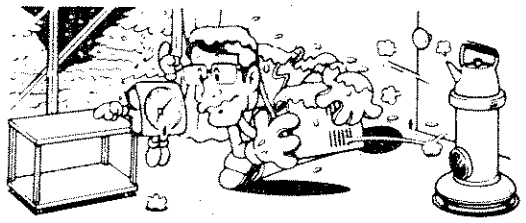
Do not install the deck in locations subject to direct sunlight, or next to a space heater or other heating device, since the finish or internal parts may be affected adversely. Malfunctions may also result if the unit is installed in a humid or dusty location. Also avoid installations next to kitchen counters or other places subject to oily smoke or heat.



- If you place the unit directly on top of an amplifier, it may pick up hum or other noise. Also, if the amplifier generates a large amount of heat, the unit may break down.
- If you place the unit near a television set, it may pick up noise which may be recorded as a whistling tone on the tape. In such a case, either install the unit away from the television set or switch OFF the television set.

DEW CONDENSATION

When the unit is moved from a cold to a warm room, or the temperature changes quickly, condensation will form on the mechanical parts and this will affect the performance of the tape. In such cases, leave the unit in a warmer atmosphere for about one hour or change the room temperature gradually.



NOTE:

When installing the tape deck, do not place a cloth over the top or block the ventilation openings in any other way.

INFORMATION TO USER [FOR U.S. MODEL]

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- reorient the receiving antenna
- relocate this equipment with respect to the receiver
- move this equipment away from the receiver
- plug this equipment into a different outlet so that equipment and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

"How to Identify and Resolve Radio-TV Interference Problems".

This booklet is available from the US Government Printing Office, Washington, D.C., 20402, Stock No. 004-000-00345-4.

The above instructions apply only to units which will be operated in the United States.

FEATURES

Two-deck Recording/Playback Quick Reverse Function

Both deck I* and deck II* are equipped with a recording/playback quick-reverse mechanism.
The relay recording function (deck I to deck II) allows for up to 3 hours of continuous recording (using two C-90 cassettes) with almost no sound breaks.
Approx. 17 hours of continuous playback are possible using two C-90 cassettes with the relay playback function (alternate playback on deck I and deck II), almost without sound breaks thanks to the blank skip and quick reverse functions. (Playback time may be less than 17 hours for tapes with many unrecorded portions because of blank skip operation.)

* The cassette deck to your left is "deck I", and the one to your right is "deck II".

Parallel Recording

Both decks can be set to record from the same program source at the same time.

Antiresonant Design for High Sound Quality

This unit has been equipped with; a honeycomb-type chassis designed in line with the antiresonance concept, a cassette stabilizer that suppresses unnecessary cassette body vibrations for clear sound reproduction, and a highly rigid audio insulator.

Twin Dolby HX Pro System

Each deck has been independently equipped with the Dolby HX Pro Headroom Extension System, providing dynamic control of the recording bias for a wider frequency response and less distortion.

Dolby NR System

Both versions (B and C) of the Dolby NR system are included to reduce annoying tape noise.

Auto Tape Selector

Detects the kind of cassette tape, and automatically sets the recording bias and equalization.

Music Search Function

To find any desired selection by skipping over a maximum 15 selections, forward or backward.

Timer Standby

Unattended recording and wake-up playback can be performed by connecting an audio timer.

Tape Copying Function

Tapes can be easily copied from deck I to deck II, either at normal or double speed.

Pioneer System Remote Control (not provided in the European model)

Connect the CONTROL IN jack to a component equipped with the Pioneer System Remote Control (bearing the mark), and you will be able to operate that component from a hand-held remote controller that comes with the component connected. (Only deck II can be operated when the remote control unit is not equipped with independent keys for deck I and deck II, or when there is no selection key for deck I and deck II.)
Refer to page 13 for the procedure for operating deck I with Pioneer Remote Control units not designed for double decks.

■ The Dolby NR System

The Dolby NR system is designed to reduce high-frequency tape hiss noise generated during playback. The level of low-volume, high-frequency sounds is increased during recording, and decreased by the same amount during playback to restore the original level. At the same time, high-frequency noise (the most easily perceived by the human ear) is attenuated as well.
Version B of the Dolby NR system reduces high-frequency tape noise, widening the dynamic range. Version C is even more powerful, applying the noise reduction effect to a wider spectrum of frequencies from the middle range.

■ The Dolby HX Pro Headroom Extension System

When recording audio signals on a magnetic tape, high-frequency signals are recorded on top of each other (recording bias) in order to compensate for the tape characteristics. The optimum amount of recording bias depends on the frequency of the recorded sound, but generally it is fixed to a value which gives acceptable results over the whole frequency range.
The HX Pro system reads in the signal at the recording head, adjusting recording bias amplitude according to the signal condition to achieve optimum recording characteristics.

- Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.
- "DOLBY", the double-D symbol and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

CONNECTIONS

- Read through the operating instructions of the stereo components which you intend to connect to this unit.
- Turn on the power only after all the connections are completed.
- Make sure that the plugs are inserted securely. Improper connection may generate noise.

MPX FILTER switch

OFF:

Normally, leave the switch in this position.

ON:

High frequencies may be muted when using the Dolby NR system during FM recording from some tuners. To prevent it, set the switch to this position.

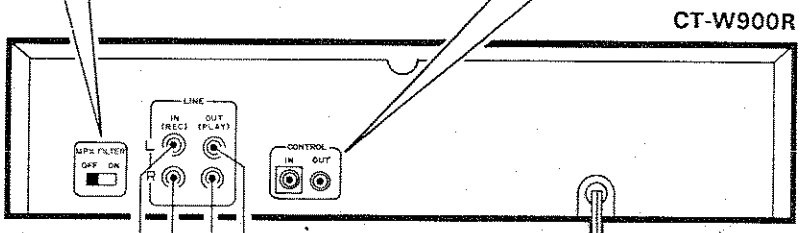
(Not provided in the European model.)

CONTROL IN jack

Connect this jack to the CONTROL OUT jack of a component equipped with the Pioneer System Remote Control (bearing the SR mark) using the optional mini-plug cord, and you will be able to operate the component using the system remote control.

CONTROL OUT jack

Intermediary output of remote control signals from the above input jack. Connect it to the CONTROL IN jack of another component compatible with the Pioneer System Remote Control.

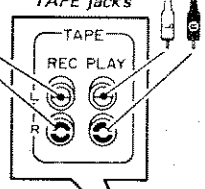


Recording connection

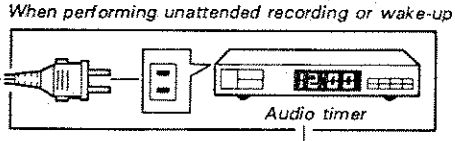
Playback connection

Supplied cords

TAPE jacks



When performing unattended recording or wake-up playback



Audio timer

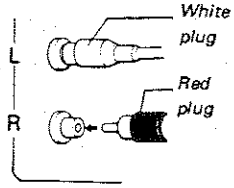
Illustration not applicable to U.K. model.

House hold AC outlet

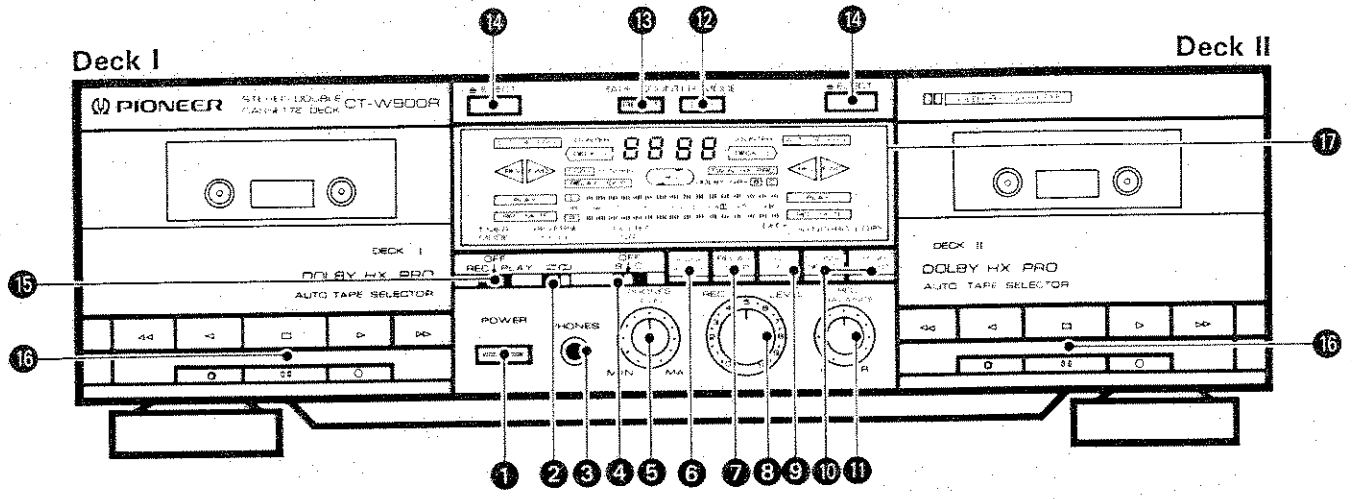
Stereo amplifier

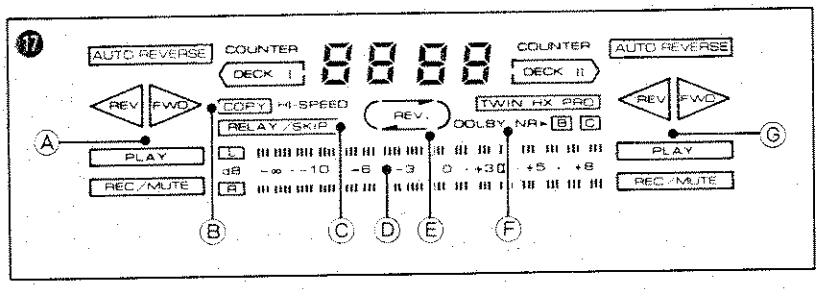
Connecting the input/output cords

Connect the plugs properly.



FRONT PANEL FACILITIES





❶ POWER switch

❷ REVERSE MODE switch (see page 9)

❸ PHONES jack

❹ DOLBY NR switch
Works on both decks simultaneously (except during tape copy)

NOTE:
When playing back Dolby-encoded tapes, always set this switch to the same position (B or C) used for recording.

❺ PHONES LEVEL control

❻ BLANK SEARCH button
To find unrecorded portions on the tape (see page 11)

❼ RELAY/SKIP button
Press this button (turning the corresponding indicator on) to perform relay recording/playback from deck I to deck II or from deck II to deck I.
It also activates the blank skip function, which fast forwards the tape to the beginning of the next selection, resuming playback from there, when mute playback continues for more than 15 seconds.

❽ REC LEVEL control

❾ PARALLEL REC button
Press this button to start recording of the same source at both decks simultaneously.

❿ SYNCHRO COPY button

NORMAL SPEED:
Starts tape copy at normal speed from deck I to deck II.

HIGH SPEED:
Starts tape copy at double speed (half time) from deck I to deck II.

⓫ REC BALANCE control

⓬ TAPE COUNTER switching button (I/II)
Switches the tape counter between the deck I and deck II readings.

⓭ TAPE COUNTER RESET button
Resets the tape counter reading to "0000".

⑭ EJECT button

Press to open the cassette door after you have pressed the stop (□) button and the tape has stop.

NOTE:
If power is turned off while the tape is moving, the cassette door may remain locked. In this case, turn power on before pressing the EJECT button.

⑮ TIMER switch

OFF:
Normally, be sure to leave the switch in this position.

REC:
For timer recording (see page 16)

PLAY:
For timer playback (see page 16)

- Recording or playback may suddenly start when turning power on with this switch in the REC or PLAY position.

⑯ Operation buttons

◁◁ : To fast-forward the tape in the direction of the arrows. When pressed during playback, the unit will skip as many selections as times the button is pressed, then start playback from the beginning of the next selection.

◁ : To playback the back side of the tape, that is the side opposite to the side whose label is visible (reverse playback).

□ : To stop all operations, including parallel recording and tape copy.

▷ : To playback the front side of the tape, that is the side whose label is visible (forward playback).

▷▷ : To fast-forward the tape in the direction of the arrows. When pressed during playback, the unit will skip as many selections as times the button is pressed, then start playback from the beginning of the next selection.

○ : To start recording. The unit will not enter the recording mode if a cassette with the erasure prevention tabs removed is loaded.

◫ : To stop tape transport momentarily during recording or playback. Press it again to resume operation (this can also be done by pressing the ◁ or ▷ button). This button does not work during fast-forward and rewind.

○ : Press this button during recording to create a blank portion of approx. 4 seconds on the tape. The unit will then enter the recording pause mode.

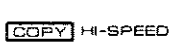
⑰ Operating Display

Ⓐ **Deck I Tape Transport Mode Indicators**
(see page 8)

Ⓑ **Tape Copy Indicator**
Lights up during the tape copy operation.

- Normal speed copy

- Double speed copy



Ⓒ **Relay/Skip Indicator**
Lights up when the RELAY/SKIP button is pressed to start relay recording or playback.

Ⓓ **Level Meter**
Holds peak indications for about 1.2 second. The ◫ beside the +3 dB mark indicates the Dolby NR system standard level.

Ⓔ **Reverse Mode Indicator**

- One-way recording/playback mode:

- Repeat playback/two-way recording mode:

Ⓕ **DOLBY NR Indicator**

- When Dolby is off

- Version B on

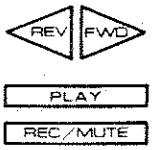
- Version C on

Ⓖ **Deck II Tape Transport Mode Indicators**
(see page 8)

OPERATING

TAPE TRANSPORT MODE INDICATORS

Show the tape transport condition as indicated below for either deck I or deck II.



	Forward-playback Mode	Reverse-playback Mode
Stop	FWD	REV
Playback	FWD, PLAY	REV, PLAY
Recording	FWD, REC/MUTE	REV, REC/MUTE
Fast-forward	FWD — *Flashing quickly*	*Flashing quickly* — REV
Rewind	*Flashing quickly* — REV, FWD	REV, FWD — *Flashing quickly*
Recording pause	FWD — *Flashing slowly*, REC/MUTE	*Flashing slowly* — REV, REC/MUTE
Playback pause	FWD — *Flashing slowly*, PLAY	*Flashing slowly* — REV, PLAY
Recording mute	FWD, REC/MUTE — *Flashing slowly*	REV, *Flashing slowly* — REC/MUTE
Forward Music Search	FWD, PLAY — *Flashing quickly*	*Flashing quickly* — REV, PLAY
Reverse Music Search	*Flashing quickly* — REV, FWD, PLAY	REV, FWD, PLAY — *Flashing quickly*

TAPE COUNTER

Indicates the tape position with a 4-digit number. To reset the reading to "0000", press the COUNTER RESET button.

AUTOMATIC SWITCHING OF THE TAPE COUNTER

When turning power on

- Two cassettes loaded . . Shows the deck I reading
- No cassette loaded . . . . Shows the deck I reading
- One cassette loaded . . . . . Shows the reading for the loaded deck

During normal operation

- When inserting a cassette . . . . . Shows the value for the deck where the cassette was inserted
- When two cassettes were loaded and one is removed . . . . . Shows the reading for the remaining cassette
- When pressing one of the operation buttons located under the cassette door . . . . . Shows the reading for the corresponding deck

• **Deck I reading**

• **Deck II reading**

• **Indication during music search**

REVERSE MODE SWITCH

Works in the same way for both decks.

⇄ Position:

Enables playback or recording on one side of the tape. Operation automatically stops when the tape is completely wound up.

In the relay mode (RELAY/SKIP indicator lit), when one-side playback or recording in one of the decks is finished, the same operation is performed in the other deck, then the unit stops automatically.

⇄ Position:

[During playback → Repeat playback]

Both sides of the tape are played back repeatedly 6 times (12 sides) or until the stop (□) button is pressed. If the pause button is pressed during playback, playback will be repeated 6 times more from that position when resuming operation.

In the relay mode (RELAY/SKIP indicator lit), the unit will repeat two-way playback on both decks for 23 tape sides, then stop automatically (when starting from the reverse direction, 22 sides are played back).

[During recording → Two-way recording]

Auto reverse is performed only from forward to reverse direction. If recording is started from the reverse direction, the unit will stop after recording only one side. To perform two-way recording, always start from the forward direction.

In the relay mode (RELAY/SKIP indicator lit), when two-way recording in one deck is finished, the same operation is performed in the other deck, then the unit stops automatically.

THE AUTO REVERSE MECHANISM

This unit uses the same rotary recording/playback head for both the forward and reverse directions. In order to minimize recording/playback sound breaks at the time of auto reverse operation, it has been equipped with a leader tape detector. This device optically detects the leader tape (clear sections at the beginning and the end of the tape) to control the auto reverse operation.

NOTE:

The leader tape detector may fail to operate, or work incorrectly, in the following cases:

- *When the leader tape is found within 10 seconds after starting the tape.*
- *When there are letters, marks, etc. printed on the leader tape.*
- *When the head area is exposed to a strong light.*
- *When the tape is considerably damaged.*

RECORDING/PLAYBACK DIRECTION SWITCHING

When turning power on, the unit is set to the tape transport mode (forward or reverse) used just before turning it off. Always check the tape transport direction and remaining tape quantity before operation. Tape transport mode should be set beforehand for parallel recording, tape copy and timer recording/playback (initial transport mode for these operations cannot be specified). To change just the tape transport mode (forward/reverse), press the playback button (◁ or ▷) corresponding to the desired direction, then immediately press the stop (□) button.

HOW TO HANDLE CASSETTE TAPES

CHECK CASSETTE BEFORE USE

Bear in mind the following points before loading cassette tapes.

Is the tape loose, or is some of the tape outside the cassette?

If some of the tape is projecting outside the cassette shell or if it is loose, it may not enter between the capstan and pinch roller. This will prevent the tape from being supplied or damage the tape itself. In cases like these, insert a pencil into the reel hole and take up the slack (Fig. A.).
Some cassette tapes come with a plastic or thick paper stopper which prevents tape slack. Remove this stopper when loading the tape and replace it after having used the cassette.

What are the accidental erasure prevention tabs for?

A cassette is provided with these tabs so that important or otherwise valuable recordings will not be erased accidentally.
When the tab (Fig. B) on the cassette shell is broken off with the tip of a screwdriver, it will not be possible to activate the recording function even by pressing the recording (REC) switch, so valuable recordings will not be erased in error.
To re-record a cassette on which tabs have been broken off, simply stick a piece of doubled adhesive tape over the tab areas, as shown in Fig. C.
In case of metal tape or chrome tape, take sufficient care that the detection hole (Fig. D, Fig. E) is not blocked. When this hole is blocked, the automatic tape selector mechanism does not operate correctly.

NOTE:
The accidental erasure prevention tabs are located at the top left on both sides A and B (1 or 2), so that material on each side can be prevented from being erased in error.

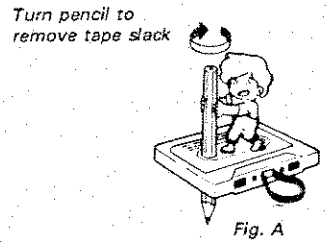


Fig. A

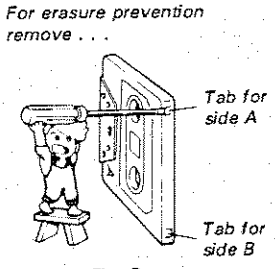


Fig. B

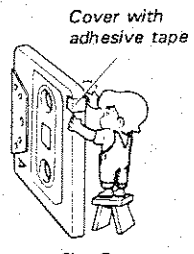


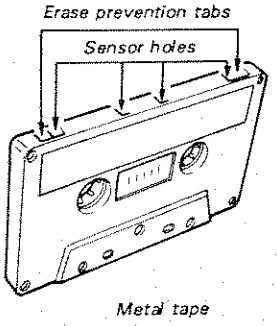
Fig. C

AUTOMATIC TAPE SELECTOR FUNCTION

This unit (Deck I and Deck II) is equipped with an automatic tape selector function which utilizes the sensor holes on the tape cassette to determine the type of tape being used, in order to set the deck to match the tape's recording bias and equalization.

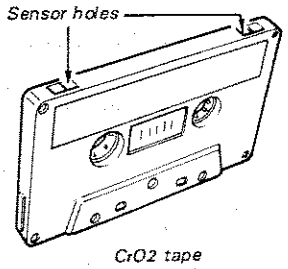
REGARDING THE TAPE CASSETTE SENSOR HOLES

- Do not use FeCr tapes with this unit.
- When using metal tapes, be sure the tape cassettes have sensor holes.



Metal tape

Fig. D



CrO2 tape

Fig. E

TIPS ON USING CASSETTE TAPES

- Leader tape (which does not allow sound to be recorded over it) is provided at the beginning of a cassette tape. Start recording after allowing the tape to run for about 5 seconds so that the leader tape clears the recording head.
- Do not leave a cassette tape exposed to the environment. Store the cassette in its case so that dust and dirt do not adhere to the tape after use, and so that the tape is prevented from becoming slack. Choose a location which is not exposed to the effects of magnetism, dust, dirt and oil for storing the tapes.
- Because C-120 tapes are so thin, they easily jam in the pinch roller and capstan, and they are susceptible to other trouble such as irregular winding. Try not to use them with this unit.

RECORDING

SINGLE RECORDING

(when using only one deck, either deck I or deck II)

1. **Insert a blank tape.**
2. **Set the DOLBY NR switch ❹.**
3. **Set the REVERSE MODE switch ❷.**
4. **Press the pause (⏸) button.**
5. **Press the recording (●) button.**
6. **Select the recording source at the stereo amplifier.**
7. **Adjust the recording level.**

Adjust the REC LEVEL control ❽ so that the 0 dB mark in the level meter lights up. The +5 dB mark may light up momently.

8. **Press the playback (◁ or ▷) button.**

To Momentarily Stop Recording

- Press the pause (⏸) button.
- To resume recording, press the (⏸) button again.

When Recording is Finished

Press the stop (■) button.

Adjusting the Recording Level

Recording level adjustment is the most important factor in achieving good recording results. A high recording level helps to improve signal-to-noise ratio and dynamic range, but if excessively high it results in distorsion. On the other hand, if level is set too low out of fear of distorting the sound, irritating tape hiss will become noticeable in the recording. Although tape characteristics differ depending on the maker and kind of tape, even for tapes of the same position, you can get the most of any tape and obtain good recordings if you adjust the recording level to a value close to the tape's maximum recording level.

The level meter has a peak holding function which displays peak levels for about 1.2 second, making level adjustment easy even for music with high-level sound bursts.

NOTES:

- *When a cassette without erasure preventing tabs is loaded, the unit will not enter the recording mode when the recording (●) button is pressed. When performing two-way recording, make sure that both tabs are intact.*
- *Always start two-way recording from the forward side. Operation will stop automatically at the tape end of the reverse side.*
- *Normally leave the REC BALANCE control in the center click position. Adjust it if you want to change the relative recording levels of the right and left channels.*

RECORDING MUTE

(creating blanks on the tape)

Use this function to create the 4-second blanks required for the music search operation.

- Press the recording mute (○) button during recording, and the unit will stop recording sound on the tape for about 4 seconds, then enter the recording pause mode.
- To create a blank more than 4-second long, hold the button down for the desired time. The unit will enter the recording pause mode when you release the button.
- To resume recording, press the pause (⏸) button.

BLANK SEARCH

(finding unrecorded portions on the tape)

This function helps you to find the end of the recorded section on a tape to continue recording from there.

STARTING SEARCH

- In the stop mode, press the BLANK SEARCH ❻ button.
- When an unrecorded portion more than 10-second long (in the fast-forward mode) or the tape end is detected, the unit will rewind the tape, create a blank of about 4 seconds from the end of the previously recorded section, and stop.
- Search is performed on the deck whose indicator is lit.

[Search on deck I enabled]

[Search on deck II enabled]

To search on the deck opposite to the display, press the TAPE COUNTER switching button (I/II) ⓬ and change the indication.

- Search is carried out on the side indicated by the tape transport indicator (forward playback or reverse playback side).

[Search on the forward (front) side enabled]

[Search on the reverse (back) side enabled]

To search on the side opposite to the indication, press the playback (◁ or ▷) button, then immediately press the stop (■) button. This will reverse the transport direction.

RELAY RECORDING

(using both decks for continuous recording)

1. Insert blank tapes in both decks.
2. Set the DOLBY NR switch ❹.
3. Set the REVERSE MODE switch ❷.
   (see page 9)
4. Press the pause (⏸) button of the deck where recording is to start.
5. Press the recording (●) button of the deck where recording is to start.
6. Select the recording source at the stereo amplifier.
7. Adjust the recording level
   (see page 11).
8. Press the RELAY/SKIP button ❼.

The indicator will light up.

9. Press the playback (◁ or ▷) button of the deck where recording is to start.

To Momentarily Stop Recording

- Press the pause (⏸) button.
- To resume recording, press the (⏸) button again.

When Recording is Finished

Press the stop (■) button.

- Continuous recording can be performed either from deck I to deck II or from deck II to deck I.
- When the REVERSE MODE switch ❷ is in the one-way (⇒) position, relay recording is performed on the side shown by the tape transport indicator.
- When the REVERSE MODE switch ❷ is in the two-way (⇄) position, operation automatically stops at the reverse side tape end, and the other deck starts recording from the forward side.
- Relay recording is canceled after is has operated once. For longer recordings, replace the already recorded tape with a blank one and press the RELAY/SKIP button ❼ once again (turning the RELAY/SKIP indicator on).
- To cancel the relay recording mode, press the RELAY/SKIP button ❼ again (turning the RELAY/SKIP indicator off).
- If a cassette without erasure preventing tabs is loaded, the unit will not enter the recording mode when the recording (●) button is pressed.
- Always make sure that the TIMER switch ⓯ is in the OFF position.

PARALLEL RECORDING

(recording on both decks at the same time)

1. Insert blank tapes in both decks.
2. Set the DOLBY NR switch ❹.
3. Set the REVERSE MODE switch ❷.
4. Press the pause (⏸) button.
5. Press the recording (●) button.
6. Select the recording source at the stereo amplifier.
7. Adjust the recording level
   (see page 11).
8. Press the stop (■) button.
9. Select the tape transport direction.

- Parallel recording is performed in the direction (forward or reverse) shown by the tape transport indicator. To change the tape transport direction, press the playback (◁ or ▷) button, then immediately press the stop (■) button.
- Tape direction can be independently set for deck I and deck II.

10. Press the PARALLEL REC button.

To Momentarily Stop Recording

- Press the pause (⏸) button (it will affect both decks).
- To resume recording, press the (⏸) button again.

When Recording is Finished

Press the stop (■) button (it will affect both decks).

- The same source is recorded in both decks.
- Use tapes of the same length. Otherwise, the parallel recording mode will be cancelled when the shorter tape end is reached, activating the auto stop function.
- If a cassette without erasure preventing tabs is loaded, the unit will not enter the recording mode when pressing the PARALLEL REC button ❾.
- Always start two-way recording from the forward side. Operation will stop automatically at the tape end of the reverse side.
- Recording level adjustment is common to both decks, so use tapes of the same kind.
- When the recording mute (●) button is pressed, both decks will enter the recording mute mode.

PLAYBACK

SINGLE PLAYBACK

(using only one deck, either deck I or deck II)

1. **Insert a recorded tape.**
2. **Set the DOLBY NR switch ❹.**
3. **Set the REVERSE MODE switch ❷.**
4. **Set the stereo amplifier for tape playback.**
5. **Press the playback (◁ or ▷) button.**

- Playback can be performed on either deck I or deck II, only one at a time.
- Always set the DOLBY NR switch ❹ to the same position used for recording.

NOTE:
The best sound is obtained when playing back the tape in the same deck used to record it, and in the same direction.

To Momentarily Stop Playback
- Press the pause (◫) button.
- To resume playback, press the pause (◫) button again.

When Playback is Finished
Press the stop (□) button.

BLANK SKIP

(skipping unrecorded portions during playback)
Press the RELAY/SKIP button ❼, turning the corresponding indicator on. Then blank skip function will work. In this condition, when an unrecorded portion continues for more than 15 seconds, the unit will fast-forward the tape to the beginning of the next selection, then resume playback from there.

OPERATION OF DECK I USING A REMOTE CONTROL UNIT NOT DESIGNED FOR DOUBLE DECKS

[Operation of deck I]
Perform the following operation when turning on the power of this unit.
Turn on the power while pressing the STOP button (□) for deck I. Hold the STOP button down for approximately 5 seconds. Operation of deck I will now be possible.

[Switching operation from deck I to deck II]
With deck II stopped, press the deck II STOP button (□). Operation of deck II will now be possible.
Operation can be switched back to deck I from deck II by pressing the STOP button of deck I again while deck I is stopped.

NOTE:
When a power failure or another sudden change in power supply (caused by lightning etc.) occurs during operation of the unit, it will be reset to OFF state. To restart operation, please repeat the steps described above.

RELAY PLAYBACK

(using both decks for continuous playback)

1. **Insert recorded tapes in both decks.**
2. **Set the DOLBY NR switch ❹.**
3. **Set the REVERSE MODE switch ❷.**
(see page 9)
4. **Set the stereo amplifier for tape playback.**
5. **Press the RELAY/SKIP button ❼.**

The indicator will light up.

6. **Press the playback (◁ or ▷) button of the deck where playback is to start.**

To Momentarily Stop Playback
- Press the pause (◫) button.
- To resume playback, press the (◫) button again.

When Playback is Finished
Press the stop (□) button.

- Continuous playback can be performed either from deck I to deck II or from deck II to deck I.
- For relay playback, always use tapes recorded with the same Dolby NR version, and set the DOLBY NR switch ❹ to the same position used for recording.
- When playback finishes in one deck, and operation stops automatically at the tape end, the other deck will search for the beginning of the first selection and start playback.
- You can replace tapes already listened to during playback on the other deck, for continuous playback of different tapes. This is a convenient feature for party background music, etc.
- If mute playback continues for more than 15 seconds with the RELAY/SKIP indicator lit, the blank skip function will automatically search for the beginning of the next selection and resume playback from there.
  To cancel relay playback, press the RELAY/SKIP button ❼ once again (turning the RELAY/SKIP indicator off).
- When the REVERSE MODE switch ❷ is in the one-way (⇉) position, relay playback is performed on the side shown by the tape transport indicator.
- When the REVERSE MODE switch ❷ is in the two-way (⇄) position, operation automatically stops at the reverse side tape end, and the other deck starts playing back from the forward side.

MS (MUSIC SEARCH) (To return to the beginning of the present selection or advance to the next selection.)

MUSIC SEARCH (skipping forward or backward to play back a desired selection)

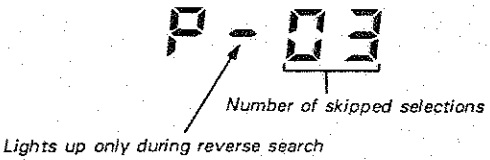
The music search function detects blanks (longer than 4 seconds) between selections, advances the tape quickly in the forward or reverse direction to find the beginning of the desired selection and automatically starts playback.
It can find a selection located up to 15 selections before or after the present position.

During Forward Playback
When you wish to locate the next song or beyond, press the ▷▷ button as many times as the number of songs to be skipped.
When you wish to listen to the song being currently played from the beginning, press the ◁◁ button once. To return to the previous song or more, press the ◁◁ button as many times as the number of songs to be skipped plus one.

During Reverse Playback
When you wish to locate the next song or beyond, press the ◁◁ button as many times as the number of songs to be skipped.
When you wish to listen to the song being currently played from the beginning, press the ▷▷ button once. To return to the previous song or more, press the ▷▷ button as many times as the number of songs to be skipped plus one.

From the Stop Mode
Press the playback (◁ or ▷) button to set the playback mode, then press the ◁◁ or ▷▷ button to perform music search as mentioned above.

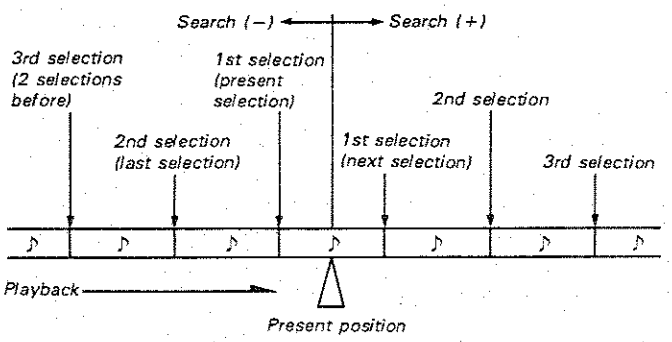
- If the button is pressed more times than the number of selections recorded on the tape, forward search will continue on the opposite side, but reverse search will stop at the tape end.
- During music search, the tape counter shows the number of skipped selections, counting up/down each time a blank between selections is found.



NOTE:
In the following cases, the music search function may be unable to properly detect blanks between selections, thus operating incorrectly. This is not, however, a sign of unit malfunction.

- *When using a tape with blanks between selections less than 4-second long.*
- *When listening to tapes with long low-level parts, like classical music, or with sound breaks several seconds long within selections.*
- *When listening to recorded conferences or talk shows, where sound is interrupted.*
- *When using tapes with noise in the blanks between selections.*

How Selections are Counted
When starting the music search operation from the middle of a selection and specifying "1st previous selection", playback will return to the beginning of the present selection. To return to selections further back, count one extra selection.



TAPE COPYING

From Deck I to Deck II

1. **Insert the recorded tape into deck I.**
2. **Insert a blank tape into deck II.**
3. **Set the REVERSE MODE switch ❷.**
4. **Select the transport direction**

Tape copy is performed in the direction (forward or reverse) shown by the tape transport indicator. To change the tape transport direction, press the playback (◁ or ▷) button, then immediately press the stop (□) button.

5. **Press the SYNCHRO COPY button ⓾.**

HIGH SPEED:
To copy the whole tape in a short time.

NORMAL SPEED:
To copy the tape while listening to the sound.

- When listening to the tape during operation, set the DOLBY NR switch ❹.

To Stop Copying
Press the stop (□) button (it will affect both decks).

- This function copies the sound from deck I to deck II.
- You can either copy the whole tape at normal speed while listening to the sound, or at double speed to reduce recording time to one half.
- No recording level adjustment is required when copying tapes.
- The deck II tape is recorded in the same condition of the deck I tape, regardless of the DOLBY NR switch ❹ position. For example, when copying a Dolby C encoded tape, the deck II tape is also recorded with Dolby C. During double speed copy, all controls become inoperative except the stop (□) button.
  During normal speed copy, the deck II recording mute (○) and pause (▯▯) buttons also work.
- The tape copy mode is canceled when the end of any one of the tapes is reached, so it is advisable to use tapes of the same length.
- When copying the same material several times, always record it from the original tape. Sound quality would deteriorate if recorded from a copy.

Note on Double Speed Copy
When performing double speed copy, an interference beep might be recorded if there is a TV nearby. In this case, use normal speed copy or turn the TV power off.

TIMER RECORDING/PLAYBACK

TIMER RECORDING (unattended recording from a tuner, etc.)

1. **Insert a blank tape.**
- Recording will be performed on the deck having a cassette loaded.
- If tapes are loaded in both decks, relay recording will be carried out.

2. **Set the DOLBY NR switch ❹.**

3. **Set the REVERSE MODE switch ❷.**

4. **Select the tape transport direction**

Timer recording is performed in the direction (forward or reverse) shown by the tape transport indicator. To change the tape transport direction, press the playback (◁ or ▷) button, then immediately press the stop (□) button.

5. **Press the pause (▯▯) button.**

6. **Press the recording (○) button.**

7. **Prepare the program source.**

Set the amplifier input selector to tuner, and tune in the desired broadcasting station.

8. **Adjust the recording level**
(see page 11).

9. **Set the audio timer**

Power of all components will go off.

10. **Set the TIMER switch to REC.**

- At the preset time, power will be turned on and recording will start automatically.
- Recording will be performed on the deck having a tape loaded.
- If cassettes are loaded in both decks, recording will start from deck I, and continue on deck II when the tape end is reached (relay recording). Therefore, make sure that a recorded tape is not loaded in deck II.
- Timer recording will not work if a cassette with its erasure prevention tabs broken is loaded.
- Operation of audio timers differs depending on the model, so consult the instruction manual of your unit.
- When performing relay recording to deck II, select the tape transport direction for both decks.

When not performing timer operation, always set the TIMER switch ⓯ to the OFF position. Otherwise, recording or playback might automatically start when turning power on.

TIMER PLAYBACK (wake-up playback)

1. **Insert the recorded tape.**
- Playback will be performed on the deck having a cassette loaded.
- If tapes are loaded in both decks, relay playback will be carried out.

2. **Set the DOLBY NR switch ❹.**

3. **Set the REVERSE MODE switch ❷.**

4. **Select the tape transport direction.**

Timer playback is performed in the direction (forward or reverse) shown by the tape transport indicator. To change the tape transport direction, press the playback (◁ or ▷) button, then immediately press the stop (□) button.

5. **Set the stereo amplifier for tape playback**

Adjust the volume level for wake-up playback (check it by actually playing back the tape).

6. **Set the audio timer**

Power of all components will go off.

7. **Set the TIMER switch ⓯ to PLAY.**
- At the preset time, power will be turned on and playback will start automatically.
- Playback will be performed on the deck having a tape loaded.
- If cassettes are loaded in both decks, playback will start from deck I, and continue on deck II at the tape end (relay playback).
- The blank skip function will work during timer playback, so if an unrecorded portion continues for more than 15 seconds the unit will automatically fast-forward the tape to the beginning of the next selection and resume playback from there.
- Always set the DOLBY NR switch ❹ to the same position used for recording.
- Operation of audio timers differs depending on the model, so consult the instruction manual of your unit.

When not performing timer operation, always set the TIMER switch ⓯ to the OFF position. Otherwise, recording or playback might automatically start when turning power on.

MAINTENANCE

CLEANING THE HEAD, PINCH ROLLER AND CAPSTAN

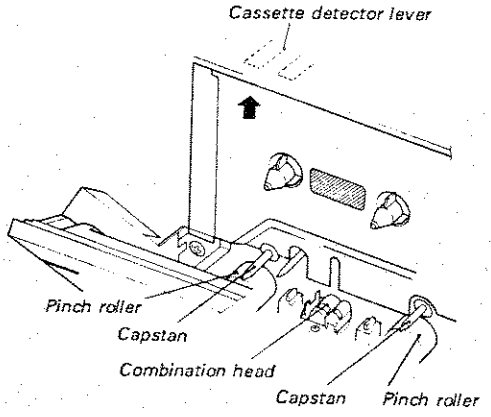
The heads, pinch roller and capstan are parts which are liable to get dirty quite easily. In particular, if the heads are dirty, the high-frequency components are not reproduced and the stereo balance is impaired, resulting in a deterioration in the playback sound. It is therefore recommended that the head section be cleaned regularly.

1. Depress the Eject button ⓮ and open the cassette door.
2. Dip the cleaning swab into the cleaning fluid and use it to wipe the heads, capstans and pinch rollers.

To clean the pinch roller while it is rotating:

Press up the detector lever in the cassette door. Next, press either the forward switch (▷) or the reverse switch (◁).

- In the forward mode, the pinch roller rotates for only about 5 seconds. Press the forward play switch to have the pinch roller rotate once again.
- After rotating and cleaning the pinch roller, press the stop switch. The cassette door will not close unless the stop mode has been set.
- The position of the detector lever is shown in the diagram.



NOTE:
Do not load a tape after cleaning the head section until the cleaning fluid has completely dried (this takes two or three minutes).

DEMAGNETIZING THE HEADS

After using the cassette deck over a period of time, the heads will become magnetized. The same effect is also caused by bringing a screwdriver, magnet or other magnetized object too near the heads. This causes loss of high-frequency sound during recording and playback, and is also a cause of interference noise. The heads should be regularly demagnetized with a head demagnetizer (eraser) which can be purchased at dealer shops.
When demagnetizing the heads, be sure the cassette deck POWER switch ❶ is in the STANDBY position. For detailed instructions, consult the operating manual for your head demagnetizer (eraser).

CLEANING THE FRONT PANEL SECTION

Wipe the front panel and the cassette door when dusty or greasy with a soft cloth containing a small amount of ordinary liquid soap. Then, wipe dry with a cloth. Never use volatile spirits like thinners, benzine or alcohol because they will damage the panel finish.

TROUBLESHOOTING

Incorrect operations are often mistaken for trouble and malfunctions. If you think that there is something wrong with this component, check the points below. Sometimes the trouble may lie in another component. Investigate the other components and electrical appliances being used.
If the trouble cannot be rectified even after exercising the checks listed below, ask your nearest PIONEER authorized service center or your dealer to carry out repair work.

Symptom	Probable Cause	Remedy
Power		
Cannot turn power on	• The power plug is removed. • The component (stereo amplifier, audio timer, etc.) to which the power cord is connected is off.	• Insert the power plug correctly. • Turn the stereo amplifier or audio timer on.
Cassette Door		
The door does not open	• The deck is not in stop mode (tape is moving). • Power was turned off with the tape moving.	• Press the stop (□) button. • Turn power on.
The door does not close	The cassette is not properly loaded.	Reinsert the cassette.
Playback		
Immediately stops	• The tape is completely wound. • The tape is slack.	• Play back in the opposite direction. • Rewind the tape. • Take up tape slack (see page 10).
The level meter does not work	• The tape is not recorded. • The tape head is dirty.	• Replace the tape with a recorded one. • Clean the head (see page 17).
No sound	• The amplifier input selector is not correctly set. • The amplifier volume level setting is too low. • Connection problems (wrong connection, cord removed, poor contact, broken wire).	• Set the amplifier input selector correctly. • Turn the amplifier volume control up. • Connect securely.
Recording		
The recording indicator does not light up	The cassette erasure prevention tabs are broken.	• Replace the cassette with one whose tabs are intact. • Cover the hole under the tab (see page 10).
The level meter does not work	• The REC LEVEL control is set too low. • The amplifier is not delivering a recording signal (from the tuner, CD player, etc.). • Wrong connection, connection cord removed, poor contact, broken wire.	• Turn the REC LEVEL control up. • Set the amplifier recording output selector correctly. • Check connections.
Immediately stops	• The tape is completely wound up. • The tape is slack.	• Record in the opposite direction. • Rewind the tape. • Take up tape slack (see page 10).
Cannot record	The head is dirty.	Clean the head (see page 17).

Symptom	Probable Cause	Remedy
Poor sound quality		
Unstable or interrupted sound	• The head, pinch rollers and capstans are dirty. • The tape is not uniformly wound.	• Clean (see page 17). • Completely fast-forward or rewind the tape.
No high frequencies	• A tape recorded without Dolby NR is being played back with the DOLBY NR switch in the B or C position. • The head is dirty.	• Set the DOLBY NR switch to OFF. • Clean the head (see page 17).
High frequencies are emphasized	A Dolby-encoded tape is being played back with the DOLBY NR switch in the OFF position.	Set the DOLBY NR switch to the same position used for recording.
Sound from previous recordings remains when re-recording a tape	The head is dirty.	Clean the head (see page 17).
The sound is distorted	• Recording level is too high. • The recorded signal itself is distorted. • The head is dirty.	• Turn the REC LEVEL control down when recording (see page 11). • Replace the cassette. • Clean the head (see page 17).
Too much noise	• A noisy tape is being used. • Incomplete insertion of a connection cord, poor contact. • Recording level is too low. • The head is dirty. • The head is magnetized.	• Replace the cassette. • Check connections. • Turn the REC LEVEL control up when recording (see page 11). • Clean the head (see page 17) • Demagnetize with a head demagnetizer.
Others		
The music search function does not work	Blanks between selections are less than 4-second long.	Use a tape with blanks more than 4-second long.
The tape counter does not work	The counter reading for the other deck is displayed.	Press the TAPE COUNTER switching button.
Recording or playback starts suddenly when turning power on	The TIMER switch is set to the PLAY or REC position.	Set the TIMER switch to OFF.
Cannot use the remote control system	The control cord is not connected.	Connect the control cord.

SPECIFICATIONS

Systems . . . . . 4 track, 2-channel stereo
Heads . . . . . .
"Hard Permalloy" recording/playback head × 2
"Ferrite" erasing head × 2
Motor . . . . . DC servo capstan motor × 2
DC reel motor × 2
Wow and Flutter . . . . . No more than 0.055% (WRMS)
No more than ±0.16% (DIN)
Fast winding Time . . . . . Approximately 100 seconds (C-60 tape)
Frequency Response
−20 dB recording:
Normal tape . . . . . 18 to 17,000 Hz
Chrome tape . . . . . 18 to 18,000 Hz
Metal tape . . . . . 18 to 18,500 Hz
0 dB recording:
Normal tape . . . . . 18 to 12,000 Hz
Chrome tape . . . . . 18 to 13,500 Hz
Metal tape . . . . . 18 to 16,000 Hz
Signal-to-Noise Ratio
Dolby NR OFF . . . . . More than 58 dB

Noise Reduction Effect
Dolby NR B type ON . . . More than 10 dB (at 5 kHz)
Dolby NR C type ON . . . More than 19 dB (at 5 kHz)

Harmonic Distortion . . . . . No more than 0.7% (0 dB)
Input (Sensitivity)
LINE (INPUT) . . . . . 63 mV (Input impedance 56 kΩ)
Output (Reference level)
LINE (OUTPUT) . . . . . .
316 mV (Output impedance 5.6 kΩ)
Headphone . . . . . .
81 mV (Load impedance 8Ω, headphone VR MAX)

Subfunctions

- TWIN DOLBY HX PRO
- DOLBY B/C NR
- Music search over ±15 selections
- Double-speed and normal-speed copy (DECK I→DECK II)
- Relay recording
- Relay playback/blank skip
- Parallel recording
- Automatic I/II deck switching 4-digit electronic tape counter
- Peak level meter with peak-hold function
- Automatic space recording mute
- Blank search
- Automatic tape selector
- Quick auto reverse
- Headphones with volume control
- System remote control available (not provided in the European model.)
- TIMER Recording/PLAY BACK (Automatic relay on)

Miscellaneous

Power Requirements
U.S., Canadian models . . . . . AC 120V, 60 Hz
European model . . . . . AC 220V, 50/60 Hz
U.K., Australian models . . . . . AC 240V, 50/60 Hz
U.S. military and other destination models . . . . . AC 110V/120V−127V/220V/240V, 50/60 Hz (switchable)
Power Consumption
U.S., Canadian models 26W
European, U.K., Australian models 26W
U.S. military, other destination models 26W
Dimensions . . . . . 420(W) × 132(H) × 318(D) mm
16-9/16(W) × 5-3/16(H) × 12-1/2(D) in
Weight (without package) . . . . . 6 kg (13 lb 4 oz)

Accessories

Operating instructions 1
Connection cord with pin plugs 2
Control cord (not provided in the European model) . . . 1

NOTE:
Specifications and design subject to possible modifications without notice due to improvements.

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